

CLAIMS

1 A digital transcoding system for receiving data bit streams with a first bit rate (R1) and
2 outputting a data bit stream with a second bit rate (R2), which differs from the first bit rate (R1) and
3 in particular is reduced relative thereto, comprising on its input side a decoding device (10), which
4 has an input buffer (11) and a series-connected VLD decoder (12), also, on its output side, a coding
5 device (20), which has a series circuit consisting of a quantizer (21) for requantizing with a
6 requantization factor the data that have been dequantized in the decoding device (10), a subsequent
7 VLC coder (22), and an output buffer (23), wherein to adjust the second bit rate (R2), the new DCT
8 coefficients QF_{new}, which are to be conducted to the VLC coder (22), are determined with reference
9 to macro-blocks, in accordance with the following formula:

$$QF_{new}[\nu][u] = QF_{old}[\nu][u] \cdot \frac{qs_{old}}{qs_{new}},$$

10 where qs_{old} stands for the old quantization factors, and qs_{new} for the new ones, and where QF_{old} stands
11 for the DCT coefficients at the output of the VLD decoder (12).

1 2. The digital transcoder system of claim 1, wherein the value QS_{new} can be adjusted manually
2 or by a control algorithm

1 3. The digital transcoder system of claim 1, wherein the value of the requantization factor qs_{new}
2 is determined, with reference to macro-blocks, in according with the following requantization

3 formula:

$$qs_{new}[i] = S \cdot \left((1 - R) \frac{r^{in}}{r^{out}} qs_{old}[i] + R \cdot A \right),$$

4 where S, A, and R are prescribed correction factors, r^{in} is the determined bit rate of the received data
5 bit stream (R1), and r^{out} is the desired output bit rate (R2) of the transcoded data bit stream.

1 4. The digital transcoder system of claim 1 comprising a common stage (40) with a multiplier
2 (41), which receives the value QF_{old} from the VLD decoder (12) and also the quotient qs_{old}/qs_{new} , and
3 in that the output of the multiplier (41) is connected, via a float-/integer-stage (42) to the input of the
4 VLC coder (22).

5. The digital transcoder system of claim 4, wherein the value qs_{old} is determined from the input
data stream (R1).

6. The digital transcoder system of claim 5, wherein the VLC coder (22) inserts the unchanged
motion data from the input data bit stream (R1) into the transcoded bit stream.

1 7. The digital transcoder system of claim 6, comprising a device (51) for determining a target
2 data quantity (j) per picture or per reference object, and in that this device (51) is connected to a
3 scene section detection device (55), which detects scene sections in the picture, and an average value
4 for the requantization factors of a previous picture of the same picture type, and a value for the

5 number of bits that were generated in the transcoding of the immediately preceding picture are
6 inputted as further control variables. [sic]

1 8. The digital transcoder system of claim 7, wherein the requantization factor qs_{new} can also be
2 changed in terms of the number of macro-blocks per received picture and in terms of the picture
3 refresh frequency in the received data bit stream.

1 9. The digital transcoder system of claim 8, comprising a monitoring device (56) to monitor
2 overflow or underflow of a VBV memory (57).

10. The digital transcoder system of claim 9, wherein the second bit rate (R2) is set constant
independent of a variability of the first bit rate (R1).